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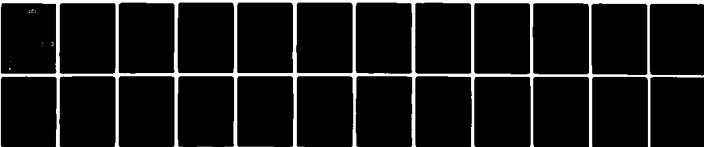
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Hypochondriasis and Tendency to Adopt the Sick Role as Moderators of the Relationship Between Life Events and Somatic Symptomatology.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The relationship between measures of hypochondriasis and the tendency to adopt a sick role, life-events and somatic symptomatology were explored. A sample of 85 married couples drawn from the community (n = 170) completed mailed questionnaires about the past year's events and symptoms and about hypochondriasis and sick-role tendency. Life-events were related to symptoms ($r = 0.17$) as were hypochondriasis, sick-role tendency, and subjects' sex ($r_s = 0.23, 0.16, 0.22$, respectively). Hierarchical multiple regression analyses demonstrated that		

hypochondriasis and sick-role tendency were also related to the association between events and symptoms, such that subjects with high scores on the former measures showed a reduced event-symptom correlation compared with low and moderate scorers. Low scorers on hypochondriasis and sick-role tendency had a considerably stronger relationship between events and symptoms compared to those typically reported in the literature. It was suggested that hypochondriasis and sick-role tendency may be moderators of the life-event symptom relationship and as such deserve more widespread use in life-events research.

Hypochondriasis and Tendency to Adopt the Sick Role as Moderators
of the Relationship Between Life Events and Somatic Symptomatology

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Hypochondriasis and Tendency to Adopt the Sick Role as
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Life Events and Somatic Symptomatology

In a recent review of life change and illness studies, Rahe and Arthur (1978) set out several challenges for psychosomatic researchers. Among their points was a call for the development of strategies for understanding and controlling "illness report behavior," the area concerned with discrepancies between subjective illness report and physiological functioning and correlates of such discrepancies. To exemplify the importance of the issue the authors reported that Cline and Chosey (1972) found that retrospectively collected life events correlated .35 with medical histories and physical examinations, a correlation considerably larger than those reported when subjective illness report was the dependent measure. Therefore variations in the accuracy of illness reports could to some extent determine the magnitude of the relationship between life events and illness. Mechanic (1974) has made a similar but even stronger point, noting that one means of coping with life stress is to adopt a sick role and thereby lessen one's social responsibilities. In these cases, any relationship between life events and illness reports would be spurious.

There are several constructs which seem related to assessing the potential impact of the accuracy illness reports on the correlation between life events and illness. The two concepts investigated here are sick role tendency and hypochondriasis. Parson's (1951) definition of the tendency to adopt the sick-role rests on the idea that physically ill individuals are to some degree released from social responsibilities. Therefore, declaring oneself sick may be influenced by not only somatic dysfunction but also by the desire or need to be released from social obligations. A subjective illness report is not a

veridical index of physical state for individuals who have adopted the sick-role. Mechanic and Volkart (1961) developed a scale to measure the sick-role tendency (SRT) and tested the hypothesis that frequency of medical visits were related to SRT scores among a sample of college freshmen. Relationships among stress, defined by self-reported loneliness and nervousness, SRT, and the frequency of visits were also examined. Although stress was positively correlated with visit frequency, the correlation between the SRT and visit frequency was even stronger.

A second construct related to the veridicality of illness reports is hypochondriasis. Wright et al. (1977) assessed the relationship between Pilowsky's (1967) hypochondriasis scale and the discrepancy between self reports of respiratory function and a physiological measure of pulmonary function in a large group of male workers. They found that people who were high in hypochondriasis had large discrepancies between self-reported and actual respiratory function. However, low job satisfaction and many life events also predicted the discrepancy; individuals with these characteristics and high hypochondriasis had the largest discrepancy of all groups. Interestingly, the hypochondriasis measure did not distinguish between under- and over-reporters of respiratory function.

The purpose of the present investigation was to assess the possible impact of the sick role tendency and hypochondriasis in the context of methods typically used to study the relationship between life stress and illness. A sample completed a standard life events checklist, symptom report form, and the sick role tendency and hypochondriasis scales. In addition to examining the impact of SRT and hypochondriasis on the relationship between life stress, the relationship between these two constructs was also of interest. Although the two constructs are defined in different ways, an empirical demonstration of a

low relationship between them is not available.

Method

Subjects. Married couples were solicited from nearby communities in Suffolk County, New York, a suburb of New York City with a population of approximately 1.3 million. Solicitation consisted of newspaper advertisements and a mailing to 1000 randomly selected addresses from the county telephone directory. A low return was attained for at least two reasons: many letters were returned by the post office as nondeliverable, and, as addresses were not selected according to the marital status of the people living at them, many letters must have been mailed to single, divorced, and widowed persons, none of whom were eligible for the study. To date, approximately half of the 158 couples who expressed interest in the study have returned correctly completed questionnaires ($N = 85$). Average age of the subjects was 38.3 with a standard deviation of 10.6 (range: 21 - 79); 95% received some high school education and 23% went on to achieve college degrees. Social class, as measured by the two-factor Hollingshead and Redlich scale (1958), was relatively high as 64% of the households fell into the upper three categories and only 4% fell into the lowest.

Materials. All measures, including those described in the introduction, were pencil-and-paper forms and were self-administered via the postal service. The reliability and accuracy of properly implemented mail surveys compares favorably to more expensive forms of collecting data such as telephone interviews (Dillman, 1978). Life events were assessed using a form based on the event checklist developed by Myers, Lindenthal, and Pepper (1974). Several very minor events found on the Myers' et al. list, such as change in the number of hours at work, were deleted. On the other hand, seven major events whose content was not adequately covered on Myers' list were added to our checklist.

The items were taken from Dohrenwend's (1974) checklist and were: Other broken love relationship; Injury to spouse; Serious physical illness; Illness to loved one (not spouse); Serious injury to loved one (not spouse); Death or injury to significant other (e.g. boss); and, Changed to more secure job. Thus, our list was composed of 53 (88%) items from Myers' list and 7 (11%) items from Dohrenwend's list.

Subjects were instructed to check events which had been experienced within the previous year. Three events were excluded from the analysis because they could also be included in the symptom score, a condition which would inflate the association between events and symptoms. These events were: Serious illness to self; Serious injury or accident; and, Frequent minor illness. The sum of the remaining 57 checklist items served as the life events measure.

Symptoms were assessed using a parallel methodology: subjects checked those symptoms or conditions which they experienced during the past year with the 93-item symptom checklist developed by Wyler, Masuda, and Holmes (1968). The list covered both minor and major symptoms and conditions. Although subjects indicated the frequency of occurrence of symptoms for the previous year, a score based on the number of different symptoms experienced was used in the analysis to avoid the possible inflation of the symptom score by chronic conditions. Given the long, retrospective reporting period, we also expected that frequency data might be more subject to recall bias than would the number of different types of symptoms experienced.

The SRT was assessed with Mechanic and Volkart's (1961) scale. Hypochondriasis was indexed by Pilowsky's (1967) scale. The questions on both of these scales are worded simply and the content measured by the questions is evident to the respondent, for example, "Do you worry about your health?"

Results

The average number of different events reported by subjects for the previous year was 3.84 with a standard deviation of 2.52; an average of 8.50 different symptoms with a standard deviation of 3.61 were reported during the same period. The means and standard deviations for hypochondriasis were 7.37 and 1.67, respectively, and for SRT, 5.96 and 2.20.

To establish whether or not there was an association between the illness report measures (hypochondriasis and SRT) and the frequency of event and symptom report, correlations were computed among hypochondriasis, SRT, events, and symptoms. Subjects' sex was also included in the analysis because it was expected to be associated with symptom report. The correlation matrix is presented in Table 1. Corroborating the usual report in the life events literature, more symptoms were reported by those people who had experienced more life events. Women reported more symptoms than men and symptom reports were higher among people who were high on both SRT and hypochondriasis. Also, sex was significantly associated with SRT, with women scoring lower than men, but it was not associated with hypochondriasis at a reliable level. Hypochondriasis and SRT were only marginally correlated ($r = .15$, $P = .054$). Thus, the correlational analysis demonstrated that hypochondriasis and SRT could affect the event-symptom correlation because both illness report measures were correlated with symptoms.

Insert Table 1 about here

The second question was how the event-symptom correlation fared once the effects of hypochondriasis and SRT were removed from events and symptoms. If the correlation was eliminated by partialling the illness report measures, its

meaning could be considered at best more complex than originally thought or, at worst, unimportant. Hierarchical multiple regression analysis, a procedure which evaluates the contribution of a variable set to the criterion's predictability after the effects of other sets of variables have been removed, was used (Cohen & Cohen, 1975). The rationale behind the variable's entry order into the equation was that sex causally preceded all other variables due to its constitutional nature and was entered first, followed by the two illness report measures as they presumably reflected some trait-like property. Last, the life-events score, a situational measure which unlike the preceding measures varies from measurement to measurement, was entered. The analysis revealed that sex was significantly associated with symptoms ($P < .01$) and the addition of hypochondriasis and SRT accounted for an additional 5.4% of the variance ($P < .01$). The subsequent entry of events resulted in an increase of 2.9% of predicted symptom variance, a small yet significant proportion ($P < .05$). Overall, the complete regression resulted in a multiple correlation of .36, explaining 13% of the variance.

Finally, the form of the relationship between hypochondriasis and SRT scores and the event-symptom correlation was examined. Three subject groups were created based on hypochondriasis and SRT scores: subjects fell into the low scoring group (LS) if both hypochondriasis and SRT scores were below their respective group means; fell into the moderately scoring group (MS) if either, but not both, score was less than its respective group mean; or, fell into the high scoring group (HS) if both scores were greater than their respective group means. Correlations between events and symptoms computed within the groups were -.10 for HS ($P = .58$), .24 for MS ($P < .05$), and .33 for LS ($P < .01$). The rank-order correspondence between the event-symptom correlations and the groups defined by scores in the SRT and hypochondriasis measures are striking

and show that high levels of both SRT and hypochondriasis tended to weaken the relationship between events and symptoms.

Within each of these three groups, however, hypochondriasis and SRT scores were still free to vary, albeit with smaller ranges due to the group selection procedure, and the proportion of males varied across the groups: 39% for HS, 47% for MS, and 61% for LS. Thus, within groups the relationship between events and symptoms might still be affected by sex, hypochondriasis, and SRT scores, a possibility ignored by the previous within-group correlational analyses. These possible effects were examined by further subdividing each of the three groups by sex and performing regressions for each group. Within each of the six new groups hypochondriasis and SRT were partialled from symptoms, then events were added to the prediction equation. The increase in the symptom variance accounted for by events was tested for significance (See Table 2). Increments in the variance explained by the addition of events was 14.8% and 28.9% for males and females, respectively, in Group LS, 16.9% and 17.8% in group MS, and 4.5% and 6.9% in group HS. The increments for both sexes were statistically reliable for groups LS and MS, however, neither the increments for males nor females was reliable in group HS. These findings strongly suggest that regardless of sex, the illness behavior measures explored here affected the association between life-events and symptom report.

 Insert Table 2 about here

Discussion

The number of different events experienced during the past year was positively related to the number of different symptoms reported for the same period. The magnitude of the correlation was well within the range of similar

coefficients reported elsewhere for the frequency of symptom reports (.12 to .30; Rabkin & Struening, 1975). There is, however, one important difference between this study's and other studies' estimate of the correlation. In keeping with Dohrenwend's (1974) admonition to life-events researchers concerning the problematic overlap of life-event and illness measures' content, three events which may have been strongly related to the outcome measure, namely, those pertaining to illness or injury to oneself, were eliminated from the life-event score. The effect of this procedure was likely to have reduced the event-symptom correlation by yielding a conservative, yet unbiased correlation coefficient.

The correlation between the hypochondriasis and SRT scales only approached significance. Perhaps, then, the measures are truly tapping different aspects of illness report behavior and are converging on the construct. Another interpretation is that the measures are not related to a single construct, but just happen both to be related to the event-symptom correlation. The data from this study do not allow us to discriminate between these hypotheses.

The two measures of accuracy of illness report and subjects' sex were at least as strongly related to symptoms as was the event score. Controlling for sex and illness report biases reduced the symptom variance predicted by events from 4.1% to 2.6%, yet the relationship remained statistically significant. When groups were formed based on the subjects' sex, hypochondriasis, and SRT scores, males and females within the low and moderate scoring groups had reliable, positive relationships between events and symptoms after hypochondriasis and SRT were partialled. This finding did not hold with either males or females in the high scoring group. Although statistical power was lower in the high scoring group because of its relatively small size (approximately half the number of subjects as the other groups), the small

proportions of additional variance predicted by events, an average of 5.7% compared to an average of 19.6% for the other groups, lessen the likelihood that significance would be achieved with a comparably sized group. Thus, we may conclude that the usual association between life-events and illness is markedly attenuated among individuals who appear to be inaccurate symptom reporters. Conversely, for individuals who are accurate symptom reporters, the relationship between events and symptoms is markedly enhanced.

Retrospectively collected data can be useful for generating hypotheses to be tested prospectively; indeed, the method is an inexpensive if inelegant way of doing so. Accepting the limitations of statements based on data collected with a retrospective design, a good case can now be made for using measures of the accuracy of illness reports in prospective investigations of the relationship between life-events and somatic investigations of the relationship between life-events and somatic symptomatology. Our analyses indicate that the illness behavior report measures function as moderators of the event-symptom relationship. Whether this pattern of results was observed because the dependent measure in the high scoring group contained much measurement error or because there simply is not a true event-symptom relationship in the group awaits exploration in prospective studies using physiological symptom measures.

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Table 1
Correlation Matrix

	Sex	Hypochondriasis	Sick Role Tendency	Events	Symptoms
Sex	1.00				
Hypochondriasis	.09	1.00			
Sick Role Tendency	.17*	.15	1.00		
Events	.11	.13	.02	1.00	
Symptoms	.14*	.13*	.16*	.27*	1.00

* $P < .10$

NOTE: Sex was coded Male = 1, Female = 2. Scores on SRT and Hypo-
chondriasis were used to facilitate interpretations.

Table 1
Multiple Regression Analysis Within Groups
For the Two Independent Variables
For the Two Dependent Variables

Group	Sex	N	Variable	df	$F_{(1, N-2)}$	p
Lowest Group (I)						
Male	M	4	Dependent Variable 1	1	1.00	0.33
			Dependent Variable 2	1	1.00	0.33
Female	F	4	Dependent Variable 1	1	1.00	0.33
			Dependent Variable 2	1	1.00	0.33
Middle Group (II)						
Male	M	4	Dependent Variable 1	1	1.00	0.33
			Dependent Variable 2	1	1.00	0.33
Female	F	4	Dependent Variable 1	1	1.00	0.33
			Dependent Variable 2	1	1.00	0.33
High Group (III)						
Male	M	4	Dependent Variable 1	1	1.00	0.33
			Dependent Variable 2	1	1.00	0.33
Female	F	4	Dependent Variable 1	1	1.00	0.33
			Dependent Variable 2	1	1.00	0.33

* p < 0.05, ** p < 0.01.

1. The results of the analysis of the multiple regression within groups for the two dependent variables are shown in Table 1.

Footnote

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Maxwell AFB, Alabama 36112

AFCOSR/HL (Dr. Fregly)
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